BEFORE THE
MAHARASHTRA ELECTRICITY REGULATORY COMMISSION
World Trade Centre, Centre No.1, 13th Floor, Cuffe Parade, Mumbai- 400 005

IN THE MATTER OF

Long term Development of Renewable Energy Sources and associated Regulatory (RPS) Framework

Case No 6 of 2006

Dr. Pramod Deo, Chairman
Shri. A. Velayutham, Member
Shri. S. B. Kulkarni, Member

Date of Order: August 16, 2006

ORDER

The Maharashtra Electricity Regulatory Commission, in exercise of the power vested in it under clause (e) of sub-section (1) of Section 86, read with sub-section (h) of Section 61 and Section 3 of the Electricity Act, 2003 (hereinafter referred to as EA 2003) and all other powers enabling it in this behalf, determines the regulatory framework for long term development of renewable energy sources namely, Renewable Purchase Specification (RPS), within the State of Maharashtra.

In exercise of its powers vested in it as per above provisions of the EA03, the Commission hereby passes the Order as under:

1 BACKGROUND AND REGULATORY PROCESS

1.1 Background

The Electricity Act 2003 has several provisions to encourage generation of electricity from renewable sources. The most important of those provisions require the State Electricity Regulatory Commission to specify the percentage of electricity, which every distribution company must purchase from renewable sources of energy. The relevant provision is reproduced below:

> *"86. The State Commission shall discharge following functions, namely -*
> *"(e) promote cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of total consumption of electricity in the area of distribution licensee".*

Maharashtra Energy Development Agency, (MEDA), the Nodal Agency in the State for development of renewable sources of energy, under Ministry of Non-conventional Sources of Energy (MNES), had applied to the Maharashtra Electricity Regulatory Commission (Commission) for approval of principles of Renewable Portfolio Standard (RPS) in April 2004.

The Commission while disposing off above Petition of MEDA vide its Order dated 3rd September 2004 in the matter had accepted the principle of Renewable Purchase Obligation while directing MEDA to carry out detailed design for long term development of renewable sources and associated enabling regulatory framework and submit the same to the Commission for approval. Relevant extracts of the Order are reproduced below:

> "*28. Further, taking note of the need expressed by Prayas at the first hearing, MEDA are directed to prepare an Approach Paper on the long-term development of renewable sources and associated enabling regulatory framework for Maharashtra, and submit it to the Commission after eliciting public comment and debate.*"

MEDA did not submit any Approach Paper on long-term development of renewable energy sources within the State until April 2006.

Significant regulatory developments have taken place since issue of above RPO order by the Commission, such as notification of National Electricity Policy (NEP) and Tariff Policy (TP) by the Central Government. Various provisions of these Policies re-emphasize the need for harnessing renewable energy generation. Clause 5.2.20 of National Electricity Policy stipulates that non-conventional energy resources, mainly small hydro, wind and biomass need to be exploited fully to create additional power generation capacity. Other relevant provisions of National Electricity Policy and Tariff Policy are elaborated under subsequent paragraph titled 'Regulatory Framework'.

1.2 Regulatory Framework

National Electricity Policy: As per Section 3 of EA 2003, the Central Government has been mandated to formulate National Electricity Policy and Tariff Policy in consultation with State Governments and the Authority for development of the power system based on optimal utilization of resources such as coal, natural gas, nuclear substances or materials, hydro and renewable sources of energy. The Central Government has notified National Electricity Policy (NEP) on 12th February 2005 and Tariff Policy (TP) on 6th January 2006.

Tariff determination for Renewable energy sources: As per Section 61 of EA 2003, Appropriate Commission is required to specify the terms and conditions for the determination of Tariff, in accordance with the provisions of the Act. Further, as per sub-section (h) of Section 61 of EA 2003, while specifying the terms and conditions for tariff, the Commission shall be guided by promotional aspect as regards renewable energy sources. The relevant extract of provision of EA 2003 is as under:

> *"61. The Appropriate Commission shall, subject to the provisions of this Act, specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by the following, namely:-*
> *(h) the promotion of co-generation and generation of electricity from renewable sources of energy;*"

The Commission, under Section 181 of EA 2003, has already notified MERC (Terms and conditions of Tariff) Regulations, 2005 on 23rd August, 2005. As per Regulation 26.1 of the Tariff Regulations, the determination of tariff in respect of supply of power from non-conventional sources of energy to distribution licensee shall be in accordance with the terms and conditions stipulated under relevant Orders for such sources.

Promotion of renewable energy sources: Under Section 86 of EA 2003, the Regulatory Commissions are required to specify specific percentage of renewable energy, which the distribution licensee is required to purchase out of total consumption of electricity in the area of distribution licensee. The relevant extract of the said provision of EA 2003 is as under:

> *"86. The State Commission shall discharge following functions, namely -*
> *"(e) promote cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of total consumption of electricity in the area of distribution licensee".*

National Electricity Policy

Clause 5.12 of the NEP contains provisions for promotion and harnessing of renewable energy sources, as under:

> *"5.12.1 Non-conventional sources of energy being the most environment friendly there is an urgent need to promote generation of electricity based on such sources of energy. For this purpose, efforts need to be made to reduce the capital cost of projects based on non-conventional and renewable sources of energy. Cost of energy can also be reduced by promoting competition within such projects. At the same time, adequate promotional measures would also have to be taken for development of technologies and a sustained growth of these sources.*
>
> *5.12.2 The Electricity Act 2003 provides that co-generation and generation of electricity from non-conventional sources would be promoted by the SERCs by providing suitable measures for connectivity with grid and sale of electricity to any person and also by specifying, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee. Such percentage for purchase of power from non-conventional sources should be made applicable for the tariffs to be determined by the SERCs at the earliest. Progressively the share of electricity from non-conventional sources would need to be increased as prescribed by State Electricity Regulatory Commissions. Such purchase by distribution companies shall be through competitive bidding process. Considering the fact that it will take some time before non-conventional technologies compete, in terms of cost, with conventional*

sources, the Commission may determine an appropriate differential in prices to promote these technologies.

5.12.3 Industries in which both process heat and electricity are needed are well suited for cogeneration of electricity. A significant potential for cogeneration exists in the country, particularly in the sugar industry. SERCs may promote arrangements between the co-generator and the concerned distribution licensee for purchase of surplus power from such plants. Cogeneration system also needs to be encouraged in the overall interest of energy efficiency and also grid stability."(emphasis added)

Tariff Policy

Clause 6.4 of the Tariff Policy (TP) notified on 6th January 2006 has further elaborated the role of Regulatory Commissions, mechanism for promoting and harnessing harnessing of renewable energy and timeframe for implementation, etc., as under:

(1) Pursuant to provisions of section 86(1)(e) of the Act, the Appropriate Commission shall fix a minimum percentage for purchase of energy from such sources taking into account availability of such resources in the region and its impact on retail tariffs. Such percentage for purchase of energy should be made applicable for the tariffs to be determined by the SERCs latest by April 1, 2006.

It will take some time before non-conventional technologies can compete with conventional sources in terms of cost of electricity. Therefore, procurement by distribution companies shall be done at preferential tariffs determined by the Appropriate Commission.

(2) Such procurement by Distribution Licensees for future requirements shall be done, as far as possible, through competitive bidding process under Section 63 of the Act within suppliers offering energy from same type of non-conventional sources. In the long-term, these technologies would need to compete with other sources in terms of full costs.

(3) The Central Commission should lay down guidelines within three months for pricing non-firm power, especially from non–conventional sources, to be followed in cases where such procurement is not through competitive bidding.

From the above, it is clear that promotion of renewable energy is not only limited to 'tariff' related matters but also needs to address associated issues that influence growth of renewable energy such as

(a) connectivity with grid for power evacuation
(b) sale to any person and
(c) purchase obligation as percentage of consumption for all.

1.3 Regulatory Process

In this context, the Commission asked its Consultant, ABPS Infrastructure Advisory (ABPS Infra) to prepare an 'Approach Paper' on 'long term development of renewable energy sources within Maharashtra and associated regulatory framework (RPS) thereof' covering issues related to harnessing of renewable energy sources within the State, for initiating further regulatory process for consultation amongst various stakeholders.

The Discussion Paper outlined various dimensions of harnessing renewable energy sources within the 'Regulatory Framework' emerging out of NEP and TP prescribed by the Central Government and suggested a suitable mechanism for further deliberation.

The Commission issued a Public Notice on 11th May 2006 and invited comments from all stakeholders. The Public hearing was conducted on 14th June, 2006 at 15:00 hours at Centrum Hall, 1st Floor, Centre No.1, World Trade Centre, Cuffe Parade, Mumbai 400 005. During the Public Hearing, Licensees, developer associations, and consumer representatives, amongst others submitted their views and comments related to proposed RPS Framework in Maharashtra. The list of participants in the Public Hearing is given in **Annexure 2**. Upon detailed scrutiny of various objections, comments, and suggestions made by licensees and other stakeholders, the Commission hereby issues this Order covering principles for 'RPS Framework within Maharashtra' as elaborated under subsequent paragraphs. This Order shall be applicable to all distribution licensees, captive generators and open access users.

1.4 Organisation of the Order

This Orderis broadly divided into four parts as under:
The First Section consists of background, chronology of events, regulatory framework and regulatory process, the applicability of the Order and organisation of the Order.

The Second Section of the 'Order' lists out the various objections raised by the Objectors in writing as well as during the Public Hearing. They have been broadly categorised into eleven issues and the relevant objections have been stated briefly alongwith the ruling of the Commission on each of these points.

The third Section of the 'Order' summarises the salient features of 'RPS framework' for Maharashtra stipulated by the Commission and also outlines various directives for all concerned.

Various Annexures covered as part of this Order are as under:

Annexure

1. List of Objectors to this Petition
2. List of participants during Public Hearing conducted on June 14, 2006

ABBREVIATIONS:

BEST	:	BrihanMumbai Electric Supply and Transport Undertaking
CERC	:	Central Electricity Regulatory Commission
GoI	:	Government of India
GoM	:	Government of Maharashtra
kV	:	KiloVolt
kVA	:	KiloVolt Ampere
kW	:	KiloWatt
kWh	:	Kilo Watt Hour
MERC	:	Maharashtra Electricity Regulatory Commission
MNES	:	Ministry of Non-Conventional Energy Sources
MoP	:	Ministry of Power
MPECS	:	Mula Pravara Electric Co-operative Society Ltd.
MSEB	:	Maharashtra State Electricity Board
MSEDCL	:	Maharashtra State Electricity Distribution Company Ltd.
MU	:	Million Units
NEP	:	National Electricity Policy
TP	:	Tariff Policy
MW	:	Mega Watt
PPA	:	Power Purchase Agreement
REL	:	Reliance Energy Ltd.
Rs	:	Rupees
RkVAh	:	Reactive Kilo Volt Ampere hour
Rs/kWh	:	Rupees per kilo watt hour
RE	:	Renewable Energy
RPO	:	Renewable Purchase Obligation
RPS	:	Renewable Purchase Specification
SEM	:	Special Energy Meters
SERC	:	State Electricity Regulatory Commission
STU	:	State Transmission Utility
TPC	:	The Tata Power Company Ltd.

CONTENT

2 OBJECTIONS RECEIVED AND COMMISSION'S RULING

2.1 Eligibility of RE sources

2.1.1 The Discussion Paper proposed that for the purpose of determination of RPS percentage, generation from all types of renewable energy sources as approved by Ministry of Non-Conventional Energy Sources (MNES), Government of India shall be considered. Further, the Discussion Paper proposed that for eligibility under RPS, only 'RE generation' from grid connected RE generation projects shall be considered and RE generation from 'off-grid' generation projects or stand-alone system shall not be considered.

2.1.2 MEDA and REL submitted that they agreed with the views regarding eligibility of RE sources as mentioned in the Approach Paper. There was no response from other parties on this aspect of the Approach Paper.

Commission's Ruling

2.1.3 Generation from all types of renewable energy sources as approved by the Ministry of Non-Conventional Energy Sources, Govt. of India shall be considered. As on date, the Commission has issued Orders in case of following technologies and generation from these technologies would qualify under this RPS framework:

- Non-fossil fuel (incl. bagasse) based co-generation projects
- Wind energy sources
- Biomass (based on rankine cycle technology)
- Small Hydro power projects
- Municipal Solid Waste

2.1.4 Further, any new technology would qualify as 'renewable energy', only after the Commission has approved the technology based on the MNES approval. Further, the Commission shall determine tariff separately for each technology.

2.1.5 In addition, the Commission clarifies that only generation from grid-connected RE generation projects shall be considered, and RE generation from 'off-grid' projects or stand-alone systems shall not be considered. This is because, off-grid generation based on renewable energy sources, typically do not have separate metering arrangements.

2.2 Premise for specifying 'RPS Percentage'

2.2.1 REL submitted that cumulative capacity addition of 1002.96 MW as on 31st December 2005 represents only 47% of cumulative target capacity addition of 2118.3 MW. REL further submitted that considering the pace at which RE generation capacity is being added, the backlog of 53% of cumulative capacity target may be added during the operating period of RPS policy, and hence, meeting the target capacity of 30% of total RE potential in the State appeared difficult. Therefore, REL proposed that the Commission should consider Case-1 scenario (i.e., harnessing RE potential as per MERC Tariff Orders) for the purpose of determination of RPS percentage.

2.2.2 BEST submitted that it has complied with regulations related to RPO for 2004-05 and intends to comply with RPO obligations for 2005-06 as well. BEST requested the Commission to continue with the existing 'RPO Operating mechanism' being administered by MEDA, since there is no generation from renewable energy sources in its licensed area of supply.

2.2.3 Roaring 40s, a renewable energy developer in the Asia/Pacific region, submitted that it agrees with the Approach Paper's objective of making RPS predictable. Accordingly, RPS should provide market stability to all participants by reducing regulatory risk for generators and utilities and improve ability of renewable developers to obtain long term finance. Further, it submitted that current world demand for Wind Turbine Generators (WTGs) has exceeded production capacities, which has led to seller's market and prices of WTGs have risen by 20% to 30% in the last 12 months. In view of this, the potential for wind development may not be as large as previously envisaged.

2.2.4 Prayas submitted that the Approach Paper proposed an aggressive development of renewable energy in the State and Prayas welcomes such an aggressive approach. In their view, considering environmental, social and economic implications of dependence on fossil fuel based power generation, it is essential to adopt an aggressive policy for promoting renewable energy in the State. At the same time, it is necessary to protect interests of consumer as well as to ensure rational development of RE in the State.

2.2.5 Indian Wind Energy Association (InWEA) submitted that wind resource data presented in the Approach Paper is based on estimation done by Central and State Government agencies over the past decade. There has been a quantum shift, both in

terms of (a) additional resource assessment done by private agencies, and (b) advancement in technology for utilization of these resources. InWEA estimated that with advances in wind turbine technology and advent of 1 MW size WEGs, the wind energy potential in Maharashtra could be anywhere between 5000 MW to 7000 MW as against earlier assessed potential of 3750 MW based on 250 to 300 kW WEGs. In support of its claim, InWEA submitted that the hills of Satara where average size of wind turbine is 250 to 300 kW uses about 24 acres of land per MW, while at Supa where average size of wind turbine is 1 MW, only 12 acres per MW is required.

Commission's Ruling

2.2.6 The Commission notes that the TP stipulates that the Appropriate Commission shall fix minimum percentage for procurement of renewable energy upon taking into consideration availability of such renewable energy sources within the region and its impact on the retail tariff.

2.2.7 Further, in the earlier Orders for RE sources, the Commission had envisaged a target capacity addition of 300 MW in case of non-fossil fuel based co-generation projects, 750 MW in case of wind energy sources, 250 MW in case of biomass based power generation projects, and 200 MW in case of small hydel power projects. The target MW capacity addition can be translated in 'energy terms' and is estimated to be around 5003 MU, or approximately 6% of total energy consumption by all licensees within the State (82207 MU) for 2004-05. As against this, based on submissions made by MEDA, the actual quantum of RE procurement as a percentage of total energy procurement by all licensees within the State for 2004-05 has been only 640 MU, i.e., 0.78% of total energy procured by all licensees within the State.

2.2.8 Moreover, unless capacity addition of renewable sources keeps pace with continuous load growth, the contribution of renewable energy in the total energy consumption in percentage terms shall reduce in nominal terms. In other words, RPS percentage will have to take into account increase in procurement by all licensees over the policy tenure.

2.2.9 Further, it is necessary to consider the target of RE potential to be harnessed under this RPS policy framework. Based on 'target' for capacity addition specified under various Tariff Orders for RE sources, the Commission had envisaged capacity addition of around 1500 MW (cumulative target of 2118 MW including RE

capacity prior to Orders) which forms around 30% of the total RE potential of 6918 MW.

2.2.10 The Commission notes that except wind energy, capacity addition in other RE sources has not taken place in a timely manner as envisaged under the Tariff Orders and it therefore holds that the RPS mechanism would act as a spur to ensure that both, generators and developers, to comply with the targeted capacity addition under RPS framework would expedite and set up adequate capacity.

2.3 Applicable Tariff for procurement of RE power under RPS regime

2.3.1 REL submitted that considering the recent capacity additions in renewable energy sector, it is prudent to opt for extension of applicability of tariffs as determined already. This will help in reducing the risks and uncertainties perceived by the developers, thereby increasing the prospects of having RE projects in the State. Therefore, REL proposed that Option-2 under Approach Paper (i.e., extension of applicability of existing Tariff Orders) should be adopted.

2.3.2 The Commissioner of Sugar, Maharashtra, submitted that although the Commission's Order dated 16th August 2002 encouraged bagasse based co-generation by sugar mills, there has not been significant progress in development of co-generation plants on account of several reasons such as continuous drought for two-three years coupled with poor financial health of sugar co-operatives. However, with better crushing season for 2005-06 and with availability of funds through 'green cess', many sugar factories are likely to implement co-generation projects. In view of above, he requested the Commission to extend the validity of the Order from 31st March 2007 to 31st March 2012.

2.3.3 InWEA submitted that based on the past experience and the approach used by various Regulatory Commissions, InWEA firmly believes that normative tariff based on cost-plus approach is the most practical method, as it gives higher degree of certainty to the project. InWEA added that currently the State is witnessing a massive demand-supply gap, and RE should be viewed as one of the short-term mitigation options, as has been demonstrated by wind energy capacity addition in the last financial year. In view of above, InWEA suggested that in order to maintain 'regulatory certainty' the Commission should continue with the existing tariff for different sources till the year 2010, rather than again going through the tariff determination process.

2.3.4 The Cogeneration Association of India submitted that the Commission's Order dated 16th August 2002, had considered the project cost as Rs. 3 crore per MW, which has increased significantly to more than Rs 4 Crore per MW on account of several factors including inflation and substantial hike in steel prices, as is evident from recent projects set up in Maharashtra, Karnataka and UP in the past two years. In view of above, Cogeneration Association requested the Commission to consider an upward revision in tariff rates for these projects after taking into account the latest project costs.

2.3.5 Roaring 40s submitted that it supported the extension of existing Tariff Orders for further period under RPS regime with no resource or technology specific limit, as it would impart significant security and certainty for investment decisions. Any effort to extend renewable energy tariff beyond the current term of thirteen years would contribute to market stability and greatly assist in investment decisions for sustained growth of renewable energy within Maharashtra.

2.3.6 IL&FS Energy Development Company Limited (IEDCL) submitted that despite the Order issued by the Commission on municipal solid waste (MSW) to energy projects in Maharashtra, no project has come up till date. IEDCL opined that this is because the Order stipulates sale of power from the project to the concerned municipal bodies, when municipal bodies are currently buying power at a rate lower than that of the 'MSW to Energy' project. Moreover, IEDCL claimed that the developers are not comfortable in selling power to municipal bodies because of their poor financial health and administrative system. IEDCL added that nowhere in India, has the SERC suggested sale of power to municipal bodies. Further, of all renewable energy sources, only MSW based energy is required to sell power to municipal bodies whereas other renewable energy sources can sell power to licensees. IEDCL requested the Commission to permit MSW projects to sell electricity to distribution licensees instead of municipal bodies and to determine the tariff for such sale.

2.3.7 Bombay Small Scale Industries Association (BSSIA) submitted that the rate for purchase from renewable energy sources should be determined on a case-to-case basis by the Commission, considering the investment made by the enterprise, technology used, operation and maintenance cost incurred and quantity of energy made available.

2.3.8 Prayas Energy Group (Prayas) submitted that the Approach Paper envisaged extension of the existing Tariff Order for wind energy projects without any cap on additional wind capacity till end of RPS operating period i.e. 2009-10. Prayas observed that procurement from Wind energy is about 10% to 30% costlier than other renewable energy sources. Further, it is estimated that contribution of wind to total RE generation would increase from 25% in 2004-05 to around 50% in 2009-10. Prayas also highlighted Cl. 6.4.3 and Cl. 5.3 (c) of Tariff Policy as under –

> *"The Central Commission should lay down guidelines within three months for pricing non-firm power, especially from non-conventional sources, to be followed in cases where such procurement is not through competitive bidding" (Cl. 6.4.3 of TP)*
>
> *"Benefits of reduced tariff after the assets have been fully depreciated should remain available to the consumers" (Cl. 5.3(c) of TP).*

2.3.9 In view of above, Prayas submitted that the term of PPA should be equivalent to the economic life of the project, whereas in the current Tariff Order of MERC for wind projects, the PPA duration is stipulated as only 13 years. Prayas submitted that it is imperative for the Commission to review tariff of wind power projects, in order to ensure efficient and economical development of renewable energy within the State.

Commission's Ruling

2.3.10 The Tariff Policy stipulates that,

> *"……..It will take some time before non-conventional technologies can compete with conventional sources in terms of cost of electricity. Therefore, procurement by distribution companies shall be done at preferential tariffs determined by the Appropriate Commission.*
>
> *(2) Such procurement by Distribution Licensees for future requirements shall be done, as far as possible, through competitive bidding process under Section 63 of the Act within suppliers offering energy from same type of non-conventional sources. In the long-term, these technologies would need to compete with other sources in terms of full costs. (emphasis added)*

2.3.11 Thus, it is envisaged that the Commission has to determine preferential tariff for procurement of power for each type of renewable energy source. This is consistent with the various directives issued by the Commission in its previous Orders as well as Regulation 25.1 of MERC (Terms and Conditions of Tariff) Regulations, 2005, which stipulates,

> *"Provided that determination of tariff for supply of electricity to a Distribution Licensee from non-conventional sources of generation shall be in accordance with such terms and conditions as stipulated in relevant Orders of the Commission." (Regulation 26.1 of MERC (Terms and conditions of Tariff) Regulations, 2005)(emphasis added)*

2.3.12 Accordingly, the Commission hereby rules that

2.3.12.1 The tariff shall be determined separately for each kind of renewable source and for each type of renewable technology.

2.3.12.2 The Commission shall as far as possible be guided by the principles and methodologies if any specified by the CERC, National Electricity Policy and Tariff policy, while deciding on the terms and conditions of tariff for co-generation and generation of electricity from renewable sources of energy. The Commission may deviate from the above by giving reasons in writing in order to accommodate the specific nature of renewable sources and technology used.

2.3.12.3 While determining the tariff, the Commission may, to the extent possible, make an allowance based on technology, fuel, market risk and environmental benefits, etc., of each type of renewable source.

2.3.13 In view of above, the following two options are available for tariff under the RPS regime:

Option-1: Re-determination of tariffs for new RE projects

Option-2: Extension of applicability of tariffs as determined already

2.3.14 The Commission has so far determined tariff for renewable energy technologies through Tariff Orders as summarized in the following Table:

Table: Summary of existing Tariff Orders for RE technologies

Renewable Energy Source	Tariff Order date	Target Capacity Addition	Validity period under earlier Orders
Non-fossil fuel (bagasse) based co-generation	16th August 2002	300 MW	31st March 2007 or target capacity addition, whichever is earlier
Non-fossil fuel (bagasse) based Non-Qualifying Co-generation	25th May 2005	Incl. above	31st March 2007 or review linked to review of Qualifying co-generation project cases
Wind Energy	24th November 2003	750 MW	31st March 2007 or target capacity addition, whichever is earlier
Biomass	8th August 2005	250 MW	31st March 2010 or target capacity addition, whichever is earlier
Small Hydel	9th November 2005	200 MW	9th Nov 2010 or target capacity addition, whichever is earlier
Municipal Solid Waste	6th April 2004	Not specified	31st March 2007

2.3.15 Hence, post 31st March 2007 and prior to 31st March 2010, question of re-determination of tariff for renewable energy based generation projects within Maharashtra shall arise in case of wind energy, non-fossil fuel (incl. bagasse) based co-generation projects and new RE technologies. In case of biomass and small hydel power project cases, the Tariff Orders are valid till 31st March 2010 and 9th November 2010 respectively.

2.3.16 The review of tariffs after a specified period in applicable Tariff Orders is to consider operational experience of such RE projects during the period and enable the Commission to verify and validate the assumptions that had formed the basis for tariffs in the first place. However, it is seen that except wind energy, the capacity addition in case of other renewable energy technologies (e.g. bagasse based co-generation) is limited. In case of wind energy, the Commission had specified the target of 750 MW for the period 2002-03 to 2006-07. However, very little capacity was added during the first two years of this period. Significant capacity addition has taken place during 2005-06 and the target is likely to be achieved only by September 2006. As such the availability of operational experience in case of wind mills is rather limited as they have been commissioned

subsequent to completion of windy season (monsoon period) in 2005-06. Hence a review of tariffs at this stage will not serve any useful purpose. The Commission also believes that re-determination of tariff needs to be undertaken if the existing Tariff Orders are unable to address the concerns of stakeholders such as lenders, investors and off-takers, thereby limiting RE capacity addition as envisaged under the Tariff Orders.

2.3.17 In case of 'MSW to Energy' projects, IEDCL has requested the Commission to have a re-look at the Order, no other stakeholder has raised any major objection on the Tariff Orders already in place.

2.3.18 In fact, several stakeholders including Commissioner of Sugar, Indian Wind Energy Association and Reliance Energy Ltd have requested the Commission to extend the validity of existing Tariff Orders.

2.3.19 The Commission is of the opinion that the need for capacity addition using all available resources within the State cannot be over-emphasized particularly when the State is reeling under severe supply shortage. Given that any capacity addition through conventional energy sources would have significant gestation period, augmentation of capacity through renewable energy needs to be encouraged. Capacity addition through renewable energy projects also increases the energy security and provides price stability when the availability and prices of conventional fossil fuel based generation is uncertain, as currently prevalent.

2.3.20 The Commission is of the view that stipulating 'RPS Policy framework' without specifying applicable tariffs will make RPS Policy Framework ineffective. Therefore, it is essential to provide certainty on tariff issues. In this context, the Commission opines that initiating the process of re-determination of Tariffs at this stage, will add to regulatory uncertainty from developers' perspective.

2.3.21 In view of above, the Commission rules that the tariff rates and tariff structure as approved under respective Tariff Orders in case of (a) non-fossil fuel based (qualifying) co-generation projects; (b) non-fossil fuel based (non-qualifying) co-generation projects; (c) wind energy projects, (d) municipal solid waste to energy projects, and (e) small hydro projects, shall be extended for further period upto 31st March 2010 under RPS Policy Framework as formulated under this Order.

2.3.22 Further, the Commission rules that above extension of validity of Tariff Orders covers only the tariff rate and tariff structure as stipulated under the respective Tariff Orders. Other terms and conditions stipulated under the Orders such as reactive energy charges, transmission and wheeling charges, etc. shall continue to be applicable so long as they are not inconsistent with any subsequent Orders and Regulations such as State Grid Code Regulations, as notified by the Commission from time to time.

2.3.23 Further, the Commission rules that 'MSW to Energy' projects shall also be eligible to sell to distribution licensees and other eligible persons including OA users. However, tariff rate for such procurement by distribution licensees shall be determined by the Commission through separate regulatory process. In this respect, the interested developers may file separate petitions before the Commission.

2.3.24 Further, the Commission clarifies that the tariff for new RE technologies such as biomass based gassifier, sewage and industrial waste based generation, etc. shall be determined separately by the Commission.

2.4 Impact on Power Purchase Cost of Utilities

2.4.1 Prayas submitted that as per the Approach Paper, the impact of RPS target of 6% on consumer tariff has been estimated as 6 paise per unit (i.e., less than 2%). Prayas urged that in order to ensure that tariff burden on consumers is limited and to ensure efficient procurement of renewable energy, the Commission should adopt 2% as ceiling for tariff impact due to RE procurement during operating period of RPS. Prayas added that the Commission should review RPS regime if such impact exceeds 2% during any year within operating period.

2.4.2 Mula Pravara Electric Co-operative Society Ltd (MPECS) submitted that while evaluating impact on power purchase cost of utilities under Alternative-1 under the Approach Paper, the Commission has considered marginal cost of power procurement of MSEDCL alone and evaluation under Alternative-2 (i.e., impact on per unit average cost of supply) is not representative of MPECS' cost economics since energy procurement by MPECS (620 MU) forms only 0.66% of total energy input for all licensees within State. Further, MPECS submitted that MPECS is a rural electric co-operative society, with predominant agriculture consumption, hence its consumer mix, load profile and revenue earning potential is not comparable with any other licensee in the State. MPECS added that it does not

have any generating source of its own and is entirely dependent on MSEDCL to meet its energy requirement, the bulk supply tariff for which is determined by the Commission. MPECS further submitted that its ARR and Tariff Petition is pending before the Commission. MPECS also added that as per Cl. 6.4 of TP, the Appropriate Commission is required to specify percentage for RPS after taking into account its impact on retail tariffs. In view of above, MPECS requested the Commission to take into account all these aspects while determining applicability of RPS framework in case of MPECS.

Commission's Ruling

2.4.3 The Commission notes that there are two alternatives to evaluate the impact on power purchase cost of utilities, viz.,
Alternative-1: Comparison with cost of energy procurement at margin
Alternative-2: Assessment of impact on the basis of average cost of supply

2.4.4 MSEDCL, as per their ARR and Tariff Petition for 2006-07, has proposed to procure 3504 MU from trading companies at average power purchase rate of around Rs 4.00/kWh, around 530 MU from Sardar Sarovar project at Rs 4.18/kWh and around 900 MU of UI energy at average UI rate of Rs 3.14/kWh. In the past, MSEDCL has procured power from liquid fuel based central generating stations at rates more than Rs. 7 per unit. The Commission notes that as per details furnished by MEDA for RPO settlement for 2004-05, the weighted average rate of renewable energy procurement from Pool was around Rs 2.12 per unit. Further, weighted average rate for renewable energy procurement from all RE sources for 2006-07 (assuming RPS percentage for 2006-07 as 3%) is projected to be around Rs 3.32 per unit, which is lower than the rate for equivalent quantum of energy procurement by MSEDCL from other conventional sources at margin.

2.4.5 Taking into account conventional capacity addition plan of MSPGCL and other sources projected by MSEDCL, power shortage is likely to continue in the State, atleast in the near future. Further, prices of liquid fuels have seen rising trend in the last few years and are not showing any sign of abating. Hence, the Commission opines that procurement of power from RE sources at the existing tariff rates is likely to add to the availability of energy and be cheaper than the power purchased from other expensive fuel sources at margin and would not have adverse impact on the consumer tariffs.

2.5 Operating Period for RPS regime

2.5.1 REL submitted that if the operating period of RPS regime is in tandem with the tariff determination process for the utilities, it will facilitate compliance with the RPS. Hence, REL proposed that the operating period for RPS regime should be co-terminus with first Control Period of MYT (i.e., till March 2010). REL added that commencement of RPS regime from 2006-07 is acceptable to them.

2.5.2 MEDA suggested that the operating period for RPS regime should be co-terminus with the 11th Plan (i.e., upto 2011-12), since all Government policies are plan based and earlier Commission's rulings have also been synchronized with the same. MEDA submitted that the review of RPS policy may be done one year before the commencement of the 11th Plan, i.e., 2010-11.

2.5.3 InWEA submitted that the RPS regime should be co-terminus with the first Control Period of MYT, i.e., 2009-10, as it would provide much needed regulatory certainty for RE based investments in the State.

Commission's Ruling

2.5.4 The Commission recognises that the longer tenure of the policy would offer regulatory certainty, which will facilitate speedy harnessing of renewable sources. Risk perception of the investors and developers can be mitigated with steady policy regime and with assurance of no significant mid-course changes to various terms and conditions outlined under the policy. This will facilitate long term planning and procurement from power purchaser's perspective as well.

2.5.5 Under the circumstances, there are three options available for tenure under RPS Policy Framework:

Option-1: Five years (commencing from 2006-07 to 2010-11)

Option-2: Co-terminus with 11th Plan (upto 2011-12)

Option-3: Co-terminus with first Control Period of MYT (2006-07 to 2009-10)

2.5.6 In this context, the Commission would like to highlight that it has deferred the applicability of the MYT regime for all licensees within Maharashtra by one year. It is envisaged that ARR and performance standards as approved for 2006-07 for various licensees shall form the basis for evaluation of performance under MYT regime. The regulatory process for approval of ARR of various licensees for 2006-07 is currently underway. The first control period of MYT regime shall be of three years commencing 2007-08.

2.5.7 In view of above, the Commission rules that that RPS regime (percentage specification) as stipulated under this Order shall commence from 2006-07 and shall be co-terminus with the first Control Period of MYT regime, i.e., 2009-10. Upon gaining experience during proposed RPS regime, the Commission may review and/or extend applicability of the RPS regime beyond the suggested period.

2.5.8 Further, the Commission clarifies that the review of RPS Policy shall commence at least one year prior to end of existing Policy tenure and until revised policy is in place, existing policy shall continue. While reviewing the RPS policy, the trajectory as indicated under prevalent RPS regime shall act as a guideline, to the extent feasible.

2.6 RPS Percentage Specification and Methodology for Application

2.6.1 REL submitted that RPS percentage of 3%, 4%, 5% and 6% for FY07, FY08, FY09 and FY10 respectively will facilitate achievement of the target capacity additions. Hence, REL agreed with the RPS percentage specification and the methodology of application as mentioned under the Approach Paper.

2.6.2 BEST requested the Commission to continue with the existing 'RPO Operating mechanism' for future years as well, since there is no generation from renewable energy sources in its licensed area of supply. MPECS requested for exemption from applicability of RPS framework until several regulatory issues concerning MPECS are addressed.

2.6.3 Prayas submitted that RE availability is very site specific and considering the composition of distribution licensees in Maharashtra, the RE potential in the area of different DISCOMs is highly uneven. Hence, in order to provide equal opportunity to all DISCOMs to procure RE at competitive rates, Prayas opined that it is essential to allow DISCOMs as well as other persons to procure RE from any source in the State.

2.6.4 MEDA submitted that while computing total energy consumption within Maharashtra, power generation and consequent consumption from captive sources such as generation through CII's efforts in Pune should also be considered. Accordingly, MEDA suggested that grid connected captive should be brought under RPS purview. MEDA added that incentive mechanism should be provided for purchase of renewable energy in excess of minimum obligatory quantum.

Further, distribution licensee should be free to procure renewable energy outside its area of jurisdiction for creating competitive environment.

2.6.5 InWEA submitted that the minimum targets proposed in the Approach Paper were achievable. In this regard, InWEA suggested that all distribution licensees should consider percentage procurement of renewable energy in their ARR submission in line with the stipulated minimum target. InWEA added that the RE potential in the State is higher than that estimated in the Approach Paper. In view of this, InWEA opined that minimum RPS percentage may be increased from proposed 6% to 8% by 2010.

Commission's Ruling

2.6.6 Based on RPO settlement details as furnished by MEDA, the Commission notes that renewable energy procurement of 640 MU by all licensees within State translates to RPO percentage of 0.78% for 2004-05. Further, the renewable energy procurement for 2005-06 is estimated to be around 1737 MU (based on information furnished by MEDA as on 31st Dec 2005), which is around 2% of the total energy consumption of 85207 MU for all licensees within Maharashtra. Further, MEDA has submitted that RE capacity addition of 500-580 MW per annum and corresponding additional generation of 1200-1300 MU per annum is feasible. This translates to incremental RE generation of around 1%-1.5% of total energy consumption within the State.

2.6.7 Accordingly, the Commission rules that every 'Eligible Person' will have to procure electricity generated from eligible renewable energy sources at the percentages specified below of its total consumption of electricity within the area of a distribution licensee. Eligible Persons or Entities covered under RPS have been discussed subsequently.

Table: RPS Percentage Specification

Year	Renewable Purchase Specification (RPS)*
2006-07	3.0%
2007-08	4.0%
2008-09	5.0%
2009-10	6.0%

** Percentage RPS denotes Minimum Quantum of purchase from RE sources*

2.6.8 For the purpose of this RPS regime, for every Distribution Licensee, total consumption in its area of supply would mean energy purchased by the distribution licensee from all sources for the purpose of supply within its area of supply including quantum of energy supplied to open access and captive consumers. Similarly, for every OA Consumer and Captive Consumer, above RPS percentage specification shall be applicable on that part of the consumption which is being generated from conventional generation or procured from any source other than the local distribution licensee in whose area of supply the consumer is located.

2.6.9 The RPS shall be applicable on the gross energy units handled by the Distribution Licensees for supplying power to the retail consumers, excluding any inter-se sale of electricity amongst the Licensees.

2.6.10 Each Distribution Licensee shall indicate the proposed quantum of purchase from renewable sources of energy for the ensuing year in the ARR filing for each year under the MYT regime. The proposed quantum of purchase shall be as per clause 2.6.8 of this Order.

2.6.11 While indicating the proposed quantum of purchase from co-generation and generation of electricity from renewable sources of energy, the distribution Licensee shall indicate the sources from which it plans to purchase the specified quantum of purchase. The Distribution Licensee shall source the proposed quantum of electricity from renewable sources of energy within its area of supply, to the extent possible. In a situation where the Distribution Licensee is unable to purchase the required quantum within its area of supply, the Distribution Licensee may purchase the quantum from sources outside the Licensee's area of supply but within the State, by way of own generation or procurement of power from RE developer or by way of purchase from other licensee, provided such Licensee has procured renewable energy in excess of its minimum percentage requirement as per applicable RPS. The detailed 'RPO Operating Mechanism' as already in place and administered by MEDA shall continue to be operational with necessary modifications.

2.6.12 The Commission may waive the above minimum targets for the year as per clause 2.6.8 of this Order subject to supply constraints or any other uncontrollable factors in the opinion of the Commission.

2.7 Balanced growth of all types of RE resources under RPS regime

2.7.1 REL submitted that there are arguments in favour of and against each of the Options proposed. The Approach Paper has suggested Option-4 (i.e., no specific limit for each RE resource within the overall RPS percentage) and the same is acceptable to REL.

2.7.2 MEDA commented that there should not be any specific limit for a particular type of renewable energy source. MEDA supplemented its earlier submission through its letter dated 12th July 2006, wherein it submitted that the renewable energy potential in Maharashtra is much higher than that has been considered in the Approach Paper. According to MEDA, potential assessment of various renewable energy sources is as under:

Sr. No.	Types of RE Sources	Potential as per MNES (MW)	Plausible Potential as per MEDA (MW)	Achievement as on Jul 2006 (MW)
1	Wind	4138	6500	1001
2	Small Hydel	599	599	206
3	Co-generation	1250	1250	74
4	Biomass	781	781	14
5	MSW & Liquid Waste	287	400	0
6	Industrial Waste	350	500	6
	TOTAL	**7405**	**10,030**	**1301**

2.7.3 Further, MEDA submitted that wind energy potential as estimated by MNES/C-WET is based on deployment of 250-300 kW size wind turbines and based on wind data collected by C-WET funded met-masts within the State. The assessment of MEDA is based on additional 75-80 wind monitoring stations installed by private sector in addition to more than 125 wind monitoring stations installed by MEDA. In addition, MEDA has clarified that due to increased rate of urbanization and higher industrial activity in the State, potential for MSW and industrial waste projects have also been revised upwards. However, MEDA opined that it would be difficult to accord technology specific targets.

2.7.4 In this context, the Commission notes that the limit of 750 MW in case of wind energy sources and 300 MW in case of non-fossil fuel based cogeneration projects

was imposed by the Commission based on inputs furnished by MEDA at that stage based on assessed potential of 3650 MW for wind energy and 1250 MW of cogeneration potential and its projected plan for capacity addition. However, MEDA has subsequently submitted that the renewable energy potential in Maharashtra is much higher at 10,030 MW than estimated earlier.

2.7.5 MEDA submitted that targeted 750 MW wind capacity addition would be achieved by September 2006. However, considering preparedness of MEDA and private sector players, around 3000 MW wind capacity could be easily added in the State during next four to five years. As regards biomass, MEDA has received applications for about 350 MW of capacity addition and it feels that capacity addition in the range of 150-200 MW would be achieved by 2007-08. MEDA opined that the major growth in the renewable energy sector in the short-term will be through wind and biomass energy projects since the same are in the advanced planning stage. In addition, MEDA has initiated actions to develop other renewable sources such as bagasse based co-generation, MSW and industrial waste to energy projects. MEDA submitted that as per Government of Maharashtra Policy dated 26th February 2004 for creation of Green Power Development Fund and comprehensive policy dated 8th December 2005 for renewable energy projects, it has prepared comprehensive plan for development renewable energy projects upto 2012. The proposed plan of MEDA for RE capacity addition envisages capacity addition of around 1000 MW each year from various types of renewable energy sources.

Sr. No.	Types of RE Sources	Expected Achievement (2007-08) (MW)	Expected Achievement (2008-09) (MW)	Expected Achievement (2009-10) (MW)	Expected Achievement (2010-11) (MW)	Expected Achievement (2011-12) (MW)
1	Wind	600	600	600	600	600
2	Small Hydel	25	40	40	70	75
3	Co-generation	100	150	200	250	300
4	Biomass	100	150	158	165	177
5	MSW, Liquid & Industrial Waste	75	100	125	150	187
6	Solar PV	0.30	0.50	0.75	0.95	1.00
	TOTAL	**900.30**	**1040.50**	**1123.75**	**1235.95**	**1340.00**

2.7.6 InWEA submitted that balanced growth of different sources of energy is indeed needed within the State, to maintain much required diversity of supplies. However, the barriers faced by different technologies are quite dissimilar in nature. InWEA added that although currently wind energy is leading, contributions from other RE sources such as biomass, small hydel and bagasse based co-generation would also increase. InWEA opined that restriction in terms of internal percentages amongst RE sources is not desirable, and suggested that the Commission should leave it to the market conditions.

Commission's Ruling

2.7.7 The Percentage Specification stipulated under paragraph 2.6.8 of this Order is intended to facilitate growth of renewable energy sector and to harness renewable energy resources within the State to the maximum possible extent. However, it may be worthwhile to ensure that such growth of renewable energy within the State is not dominated by only one or two types of RE resources leading to lopsided development of renewable energy under RPS regime. In order to ensure balanced growth of all types of renewable energy sources, the Commission has evaluated following options under RPS regime:

Option-1: Minimum contribution for particular RE resource
Option -2: Maximum contribution limit for particular RE resource
Option-3: Tiers or resource bands within RPS
Option-4: No specific limit for each RE resource

2.7.8 Minimum contribution limit for particular RE resource (Option-1): Under this Option, the minimum percentage may be specified for high cost renewable technologies or technology classes (e.g., Licensees and Eligible Persons must purchase at least 0.5% of the renewable requirement from solar technologies).

2.7.9 Maximum contribution limit for particular RE resource (Option-2): Under this Option, the maximum percentage may be specified for certain technologies whose potential has been significantly exploited (e.g., wind energy must not contribute more than say 50 % of target RPS percentage).

2.7.10 Tiers or resource bands within RPS (Option-3): Under this Option, the percentage of eligible renewable energy could be from specific technologies or resource specific tiers. There could be a separate tier corresponding to each RE resource based on proportion of available potential of that RE resource within the State. Alternatively, there could be two tiers within overall RPS percentage, where one

tier could include existing renewable resources and could be set at a higher percentage than the second, smaller tier may include a set of new/commercially unviable technologies that have significant long-term development potential, e.g., solar power, wave and tidal energy. This could be set at a low percentage, which increases gradually.

2.7.11 The Commission observes that the advantage of resource/technology specific RPS approach under Option-1, 2 or 3 is that (a) it helps commercialize emerging technologies (b) facilitates new technology development where resources are plentiful but not been harnessed in favour of low cost or readily available technology options (c) limits over-exploitation of only one type of RE resource, etc.

2.7.12 However, the disadvantage of such resource/technology specific RPS approach under Option-1, 2 or 3 is that (a) Tiers increase the complexity of RPS administration, reporting and compliance procedures. (b) This will increase the cost of RPS compliance. (c) There may not be significant gain in specifying maximum limit for a particular RE resource, in case extent of harnessing of that RE resource does not exceed 50% of RE resource potential.

2.7.13 The Commission observes that as per Clause 2.5.8 of this Order, the operating period of RPS regime has been specified to be co-terminus with first control period of MYT regime. Further, based on submissions made by MEDA, significant quantum of renewable energy potential is still un-tapped. Further, the Commission notes that as per estimated potential for each RE resource and MEDA proposal for harnessing the same, it is envisaged that generation from no single renewable energy resource shall exceed 50% of its available potential in the State during operating period of RPS regime.

2.7.14 The Commission also notes that currently wind energy generation accounts for approximately 50% of total renewable energy generation in the State. Further, as per MEDA plan for RE capacity addition, it is likely that more wind projects will be commissioned in coming years. This may lead to further increase in share of wind generation if other RE sources are not able to install capacity as projected by MEDA. If the Commission specifies the maximum percentage of renewable energy from any source, it would lead to curtailing wind generation for reasons not attributable to it, i.e., inability of other RE sources to install further capacity.

Therefore, the Commission is of the opinion that it would not be prudent to stop development of any particular sector in the State for reasons not attributable to it.

2.7.15 Under the circumstances, the Commission opines that it may not be appropriate to specify technology or resource specific targets under RPS regime. Hence, the Commission rules that Option-4 (i.e., no specific limit for each RE resource within overall RPS percentage) will be applicable.

2.8 Entities to be covered under RPS regime

2.8.1 REL submitted that it agrees with the approach suggested in the Approach Paper, though clarity is required on how compliance by eligible open access consumers will be ensured.

2.8.2 MPECS submitted that it is keen to fulfill its obligations as licensee, including renewable purchase obligation, and has complied with various directions issued by the Commission from time to time. MPECS submitted that various Petitions in accordance with the Commission's Regulations and ARR and Tariff Petition of MPECS for 2004-05, 2005-06 and 2006-07 is pending before the Commission for further regulatory process. MPECS added that as per the Commission's Order dated 16th December 2005 in Case 33 of 2005, the Commission had advised GOM to remedy its GR and address issue of past power purchase dues. MPECS stated that pending action by GOM in this regard, MPECS has been unable to fulfill its financial obligations resulting in severe cashflow related concerns. MPECS requested the Commission to exempt MPECS from applicability of RPS framework until the regulatory issues concerning MPECS are resolved.

2.8.3 BEST submitted that it is a 'local authority' and the provisions of Open Access are not applicable to it.

2.8.4 Prayas submitted that as suggested in the Approach Paper, to ensure fairness, it is essential that all eligible persons, including open access consumers, are required to procure renewable energy as per percentage specified for distribution licensees. With the same rationale, it is essential that consumers using electricity from captive power plants should also be required to adhere to RPS and they should be required to procure 6% electricity requirement from RE in the year 2009-10.

2.8.5 MEDA submitted that 'eligible person' should be defined clearly, supported with examples.

2.8.6 InWEA submitted that Section 86(1)(e) of EA 2003 is applicable to all distribution licensees and all open access and captive transactions occurring within the State. However, considering the current level of metering, InWEA opined that it may be cumbersome to assimilate this data and implement the RPS framework for all eligible persons in the State. Therefore, InWEA suggested that the RPS could be made applicable to only distribution licensees for 2006-07, and from 2007-08 onwards, RPS framework should be extended to all open access and captive transactions.

Commission's Ruling

2.8.7 Section 86(1)(e) of EA2003 stipulates that the Commission is required to promote sale of RE to all 'persons', as stated below:

> *"86. The State Commission shall discharge following functions, namely -*
> *"(e) promote cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with grid and* ***sale of electricity to any person****, and also specify, for purchase of electricity from such sources, a percentage of total consumption of electricity in the area of distribution licensee". (emphasis added)*

2.8.8 The existing RPO mechanism is applicable to power procurement process of distribution licensees alone and not to procurement of power by any open access consumer. However, pursuant to notification of MERC (Distribution Open Access) Regulations 2005, eligible consumers are free to source their power requirement from persons other than their existing distribution licensee, in whose area their drawal point is situated.

2.8.9 Accordingly, in case such OA users source power from persons other than the existing licensee, then energy procured by distribution licensee shall get reduced to the extent of consumption outsourced by OA consumer. To that extent quantum of renewable energy required to be procured by distribution licensee would reduce in 'absolute terms'. As Section 86(1)(e) of EA 2003 provides that such percentage should be applicable on the 'consumption' within area of distribution licensee, the intention is clearly to apply such percentage on entire consumption in the area of distribution licensee irrespective of who is supplying such energy.

2.8.10 Besides, if RPS is levied only on distribution licensees by exempting open access users from applicability of RPS then it will not be fair to those consumers of the distribution licensees who have not availed open access, as the cost of renewable energy procurement would be borne by only those consumers who do not have choice of supply. The Commission is of the view that while it is clear that renewable energy generation within the State needs to be promoted, it is equally important that the costs and benefits of such harnessing are equitably distributed amongst all consumers.

2.8.11 Therefore, it would only be appropriate that OA and Captive consumers are also subjected to RPS regime. The Commission hereby rules that the minimum percentage as proposed under clause 2.6.8 shall be applicable to all existing and future distribution Licensees in Maharashtra as well as to open access users and captive consumers. However, it is recognised that an elaborate energy accounting, reconciliation and billing mechanism will have to be put in place to implement such RPS to OA/Captive consumers. The 'RPS Operating Mechanism' as discussed under subsequent paragraph intends to address this implementation concern.

2.8.12 Further, as per submissions made by MEDA, the Commission notes that RPO settlement for 2004-05 could not be completed due to MPECS' inability to contribute its share in the RPO. The receivables on account of MPECS to RPO Pool have effectively been borne by other licensees for 2004-05. The Commission opines that RPS as a principle, needs to be applied to all distribution licensees, open access users and captive consumers. There is no merit in excluding any eligible entity on grounds of its liquidity position or financial weakness as pleaded by MPECS. Accordingly, the Commission rejects the request of MPECS to exclude it from applicability of RPS.

2.9 RPS Operating Mechanism

2.9.1 REL submitted that it agrees with the proposal that RPO Operating mechanism developed by MEDA needs to be expanded to include OA and captive consumers as they would be obliged to comply with RPS. In addition, REL suggested that Energy Reconciliation Advice (ERA) furnished by MEDA should include the composite charge (including demand charge) of contributing licensee to drawee licensee.

2.9.2 MEDA submitted that it is happy to take up the responsibility of RPS implementation. However, MEDA requested that necessary funds and authority may be given by the Commission. MEDA also submitted that existing RPO operating mechanism shall be expanded as per Commission's new Order and guiding principles contained therein.

2.9.3 Prayas noted that as per the Approach Paper, MEDA will operate RPO and evolve operating mechanism for implementation of RPS. Essentially, MEDA will be monitoring the development and compliance of RPS as well as facilitate financial settlement amongst different participants. Prayas observed that this is a very crucial and complex role and complete transparency needs to be ensured. Prayas requested the Commission to specify data compilation and disclosure formats for MEDA. Prayas further suggested that such formats should include details such as individual project and unit-wise RE generation on monthly basis, installed capacity, self and auxiliary consumption, exported power, beneficiaries of the generation (i.e., distribution licensee, OA user or captive consumer), fuel usage, applicable tariff for such project, etc. Further, MEDA should be required to periodically publish this data as well as RPO report on its website.

2.9.4 InWEA submitted that extending existing RPO framework, which is essentially based on 'contract path' approach, would be cumbersome, difficult to implement and involve huge transaction costs if large number of open access and captive transactions are to be accommodated. Instead, it advocated an alternate approach, viz., 'RE certificate method' to undertake implementation of RPS framework. InWEA stated that such RE certificate models are prevalent in many developed countries such as US (RPS portfolio), UK (Renewable Obligation Certificates), Australia (Renewable Energy Certificate), Japan (Renewable Energy Certificate) etc., wherein all RE projects are credited with RE certificates based on the energy generation with due verification by an accredited agency. It further highlighted that in order to implement RE certificate model, several key issues need to be addressed such as

- Denomination of RE certificate
- Ceiling price for RE certificate
- Penalty mechanism for enforcement
- Validity of RE certificate
- Accrediting Agency for qualification of RE projects and verification of RE generation data
- Registry of RE certificates

In view of above, InWEA requested the Commission to constitute a Working Group to work out the details for implementation RE certificate model under RPS regime and until the same is evolved and accepted by all stakeholders, the existing 'contract path model' could be continued.

Commission's Ruling

2.9.5 Eligible persons can meet their RPS obligation by way of own generation or entering into contracts with RE developers/generators. Based on these contracts, the Eligible Person may have contracted for procurement of renewable energy in excess of the minimum percentage requirement, whereas some Eligible Persons may have shortfall in meeting the minimum percentage norm. However, Eligible Persons may be permitted to meet their minimum percentage requirement by way of inter-se sale and purchase arrangements. Hence, a mechanism needs to be established to enable Eligible Persons to undertake such transactions by way of financial settlements rather than energy settlement.

2.9.6 MEDA has developed RPO Operating mechanism in consensus with the licensees. While noting the concerns raised by InWEA and Prayas, the Commission directs MEDA to assess suitability of extending the existing RPO Operating Mechanism to the RPS framework to undertake reconciliation and settlement of renewable energy transactions amongst eligible persons. MEDA will have to develop and implement suitable operating framework to accommodate all 'Eligible Persons' under this Order. Though the final settlement is to be carried out at the end of the year, MEDA will have to develop a system for monitoring of RPS on monthly basis.

2.9.7 MEDA had taken an unduly long time to settle RPO for 2004-05. Only after issue of stern warning by the Commission to ensure settlement of RPO for 2004-05, it was settled in April 2006, nearly one year after completion of financial year. It is obvious that necessary capacity does not exist within MEDA to ensure settlement of complex RPS framework. Therefore, the Commission directs MEDA to engage a suitable consultant to develop mechanism for settlement of RPS as well as for capacity building within MEDA to undertake subsequent settlements.

2.9.8 The RPS settlement for 2006-07 will have to be carried out at the end of 2006-07. Thus, 6 months are available to MEDA for engagement of consultant, development of process and system and subsequent implementation of the system. The

Commission directs MEDA to take appropriate steps to ensure implementation of RPS within stipulated timeframe.

2.9.9 The Commission rules that Eligible Persons shall meet their RPS target by way of own RE generation or by purchase from RE developer or from another Eligible Person including licensees, in case that Eligible Person has contracted surplus RE generation in excess of its RPS Target. However, it will not be mandatory for any person procuring renewable energy in excess of its RPS target, to sell the same. In case any person decides to sell excess renewable energy, the price for such transaction would be agreed between the two parties.

2.10 Enforcement

2.10.1 REL submitted that penalty proposed in the Approach Paper for failure to comply with the RPS percentage is on higher side. REL opined that considering nature of power from RE projects and other options available to investors, the penalty should be reduced.

2.10.2 Prayas submitted that the approach of specifying financial penalty to ensure compliance with RPS is a welcome approach and Prayas, in principle, agrees that strong financial disincentive will ensure better compliance. However, considering the fact that RPS is still evolving in the State and an aggressive RE target is being attempted, it is essential that quantum of financial penalty be increased gradually over the RPS operating period. Further, Prayas opined that financial disincentives should not be exorbitant. At penalty rate of Rs 7 per unit for RE shortfall, and even at 1% shortfall of RE target (amounting to 70 MU out of RE target of 7000 MU for 2009-10) would imply penalty of Rs 50 Crore. Prayas suggested that penalty of say, 20% of weighted average cost of RE purchase, may be levied during first year of RPS operating period, which can be gradually increased to 80% by last financial year of RPS operating period. Prayas submitted that such gradual approach is desirable as it will not compromise the objective of ensuring RE contribution by the last year of operating period.

2.10.3 MEDA submitted that while considering penalties, the specific case of MPECS may be considered on account of their specific problems. Further, MEDA opined that penalty should be waived in case renewable energy is procured through competitive bidding at rates lower than that specified by the Commission. Further, penalty due to default of Eligible Person should not be passed onto RE generator separately, since it would form part of the agreement between them. MEDA also

suggested that the amount of penalties so collected should be deposited in RPO account of MEDA to support development of the sector.

2.10.4 InWEA opined that the penalty mechanism would be the chief driving factor for the RPS certificate market. However, in case the RE generation exceeds the minimum target in a particular year; it feared that the market for RE certificates would crash.

Commission's Ruling

2.10.5 In order to ensure strict compliance with the RPS, it is essential to put in place an efficient enforcement mechanism. Hence, shortfall in RE procurement by Eligible Persons against the directives issued under this Order shall be treated as non-compliance with the directives of the Commission, and shall attract appropriate action as per appropriate provisions of EA 2003. The Commission directs MEDA to report such incidence of failure to comply by Eligible Persons to the Commission.

2.10.6 Accordingly, the Commission rules that Eligible Persons will have to comply with their RPS obligations as stipulated under Clause 2.6.8 of this Order subject to conditions stipulated under cl. 2.10.7 and cl. 2.10.8.

2.10.7 The Commission concurs with the suggestion made by Prayas that enforcement mechanism should be introduced gradually, especially when RPS framework is still evolving. Accordingly, the Commission rules that during the first year of RPS operating framework, i.e., 2006-07, there shall not be any charge towards enforcement. However, the Eligible Persons shall be liable to pay at the rate of Rs 5.00 per unit of shortfall in 2007-08, Rs 6.00 per unit of shortfall in 2008-09, and Rs 7.00 per unit of shortfall for 2009-10. Further, it is clarified that, such charges levied on distribution licensees towards shortfall in renewable energy procurement will not be allowed as 'pass through' expenses in their Annual Revenue Requirement.

2.10.8 At the same time, if it is established that Eligible Person had adequately contracted for procurement of RE power with generator and if generator fails to add RE capacity or fails to supply RE power, then, Eligible Person shall be entitled to recover such costs of enforcement from such RE generator, and the contractual arrangement between Eligible Person and generator may be designed appropriately.

2.10.9 The Commission is of the opinion that the primary responsibility of enforcing and reporting such incidences of non-compliance rests with MEDA. The collections from enforcement will have to be deposited in a separate account by MEDA, and will be used to support the research and development efforts, institutional capacity building, training, public awareness related to renewable energy, etc.

3 'RPS FRAMEWORK' WITHIN MAHARASHTRA

3.1 Salient features of 'RPS Framework'

3.1.1 **RPS Percentage Specification**: Every 'Eligible Person' will have to procure electricity generated from eligible renewable energy sources at the percentages specified below.

Year	Renewable Purchase Specification (RPS)*
2006-07	3.0%
2007-08	4.0%
2008-09	5.0%
2009-10	6.0%

** Percentage RPS as stipulated above denotes Minimum Quantum of purchase from 'co-generation and generation of electricity from renewable energy sources'*

3.1.2 For the purpose of this RPS framework, for every Distribution Licensee, total consumption in its area of supply would mean energy purchased by the distribution licensee from all sources for the purpose of supply within its area of supply including quantum of energy supplied to open access and captive consumers by the licensee. Similarly, for every OA and Captive consumer, above RPS percentage specification shall be applicable on that part of the consumption which has been generated through its own captive plant or contracted with another supplier. This percentage will not be applicable to the quantum of power supplied by the distribution licensee.

3.1.3 **Eligible RE Sources**: For the purpose of this RPS framework, energy generation from all types of renewable energy sources as approved by the Ministry of Non-Conventional Energy Sources, Govt. of India, shall be considered. Further, the Commission rules that a renewable energy source and the technology shall be included amongst eligible sources for RPS, only after the Commission has approved the technology on the basis of MNES approval. In addition, the Commission clarifies that only generation from grid-connected RE generation projects shall be considered under RPS framework, and generation from off-grid projects or stand-alone systems shall not be considered.

3.1.4 **Eligible Persons**: The 'minimum percentage' as specified under clause 2.6.8 of this Order shall be applicable to all existing and future distribution Licensees in Maharashtra as well as to open access users and captive consumers.

3.1.5 **Operating Period**: RPS framework stipulated under this Order shall commence from 2006-07 and shall be co-terminus with the first Control Period of MYT regime, i.e., 2009-10. Upon gaining experience during this period, the Commission may decide to review and/or extend applicability of this RPS framework. Review of RPS Policy, if any, shall commence at least one year prior to end of existing Policy tenure and until revised policy is put in place, existing policy shall continue.

3.1.6 **Balanced growth of all types of RE sources**: While need to ensure balanced growth of all types of RE sources is noted, the Commission has decided against specifying either minimum or maximum percentage for any particular technology. However, the Commission directs MEDA to take all possible steps to ensure that projects using technologies other than wind, biomass and small hydro are taken up in the State.

3.1.7 **Applicable Tariff**: The tariff rates and tariff structure as approved under respective Tariff Orders in case of (a) non-fossil fuel based (qualifying) co-generation projects; (b) non-fossil fuel based (non-qualifying) co-generation projects; (c) wind energy projects, (d) municipal solid waste to energy projects, and (e) small hydro projects, shall be extended for further period upto 31st March 2010 under the RPS framework. Other terms and conditions stipulated under the respective Tariff Orders such as reactive energy charges, transmission and wheeling charges, etc. shall continue to be applicable so long they are not inconsistent with any subsequent Orders and Regulations such as State Grid Code Regulations, as notified by the Commission from time to time. As regards any other renewable energy source or RE technology, the Commission shall determine tariff separately for each kind of renewable source and for each type of technology. Further, municipal solid waste to energy projects shall also be eligible to sell to distribution licensees and other Eligible Persons including OA users, however, tariff rate for such procurement by distribution licensees shall be determined by the Commission through separate regulatory process based on type of RE technology deployed.

3.1.8 **RPS Operating Mechanism**: MEDA shall be responsible for administering this RPS framework in the State. While noting the concerns raised by InWEA and Prayas, the Commission directs MEDA to assess feasibility of extending the existing RPO Operating Mechanism to undertake reconciliation and settlement of renewable energy transactions carried out under this RPS framework. As RPS settlement for 2006-07 will have to be carried out at the end of 2006-07, 6 months is available to MEDA for implementation of above 'RPS Operating framework'. The Commission directs MEDA to put in place 'RPS Operating Framework' within stipulated timeframe.

3.1.9 **Enforcement**: The Eligible Persons will have to comply with their RPS obligations as stipulated under Clause 2.6.8 of this Order subject to conditions stipulated under cl. 2.10.7 and cl. 2.10.8. Shortfall in RE procurement by Eligible Persons shall be treated as non-compliance with the Commission's directives, and shall attract action as per appropriate provisions of EA 2003. The Commission directs MEDA to report such incidences of failure to comply by Eligible Persons, to the Commission. During first year of RPS operating framework, i.e., 2006-07, there shall not be any charge towards enforcement. However, the Eligible Persons shall be liable to pay at the rate of Rs 5.00 per unit of shortfall in 2007-08, Rs 6.00 per unit of shortfall in 2008-09, and Rs 7.00 per unit of shortfall for 2009-10. Such charges towards shortfall in renewable energy procurement levied on distribution licensees will not be allowed as 'pass through' expenses under their Annual Revenue Requirement.

3.1.10 The Commission's ruling in this regard stipulated in 2.6.12 keeping in view availability and other uncontrollable factors will be final.

With this Order, the Commission disposes off the Case 6 of 2006.

Sd/-	Sd/-	Sd/-
(S. B. Kulkarni) Member	(A. Velayutham) Member	(Dr. Pramod Deo) Chairman, MERC

(Malini Shankar)
Secretary, MERC

Annexure 1: List of Objectors in the matter of (Case 6 of 2006)

Sr. No	Name of Person	Organisation
1	Mr. Shantanu Dixit	Prayas Energy Group
2	Mr. Siddharth Honnihal	Reliance Energy Ltd
3	Mr. S.S.Kshatriya	BEST
4	Mr. Vijaykumar Pandit	MPECS
5	Mr. Rakshpal Abrol	Bombay Small Scale Industries Association
6	Mr. Subhash Mathurvaishya	IL&FS Energy Development Co. Ltd.
7	Mr. S.C.Natu	Cogeneration Association of India
8	Mr. Ashish Tiwari	NEG Micon India Pvt Ltd
9	Mr. Ashok Singh	CLP Power India Pvt. Ltd.
10	Mr. Anil Diggikar	MEDA
11	Commissioner of Sugar	Pune
12	Shri Jami Hossain	Indian Wind Energy Association

Annexure 2: List of Participants during Public Hearing conducted on June 14, 2006 (Case 6 of 2006)

Sr. No	Name of Person	Organisation
1	Chief Engineer (Commercial)	MSEDCL
2	Mr. Ashwini Kumar	Reliance Energy Ltd
3	Mr. Shripad Puranik	BEST
4	Mr. R.V.Kulkarni	MPECS
5	Sr Advisor	MEDA
6	Mr. Shantanu Dixit	Prayas Energy Group
7		IL&FS Energy Development Co. Ltd
8	Mr. Ashish Tiwari	NEG Micon India Pvt Ltd
9	Mr. Chintan Shah	Indian Wind Energy Association
10	Mr. G N Kamath	Renewable Energy Development Association of Maharashtra